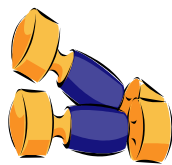


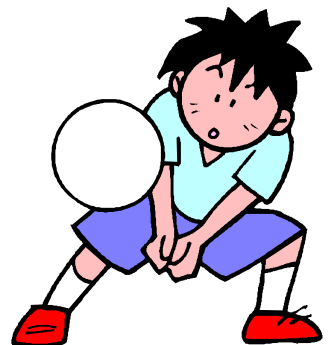
School Physical Fitness Award Scheme



Teacher's Handbook



(2005-2006)



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I. Introduction

The School Physical Fitness Award Scheme is jointly organized by the Education and Manpower Bureau (EMB) and the Hong Kong Childhealth Foundation (HKCHF). They aim at promoting the awareness of health-related fitness among school children and encouraging them to participate in regular exercises. Students can only register for participation through their school. Participating students are required to take physical fitness tests at school and pursue physical activities during their leisure time. If their results in the tests reach the required level, they will be awarded certificates. From 2005-2006 school year and onward, there will no longer be free distribution of student's handbooks. Students or schools can download the Student's handbooks from the HKCHF or EMB websites:

<http://www.childhealthhongkong.com/2003/chi/05spfas/05c08.php> or
<http://www.emb.gov.hk/index.aspx?langno=1&nodeID=3186>

If students or schools still need hard copy of the student's handbooks they may approach the HKCHF for direct purchase. Details can be found on the website: <http://www.childhealthhongkong.com/2003/eng/05spfas/05c15.php>

The success of this scheme relies entirely on the support and guidance of parents and schools. Valuable guidance of physical education teachers in advising participants to adopt the correct method of exercising as well as encouragement and support from principals and parents to the scheme are also of utmost importance.

II. The Scheme

The scheme consists of FOUR parts:

1. **Fitness Test** : The aim of the test is to assess the physical fitness status of students so that they can experience their own improvement. Teachers should conduct all the tests formally at least once in each school year (It is preferable to conduct the tests twice in each school year).
2. **Design of Individual Exercise Programme** : Based on the capability of individual students, teachers can assist students to design their exercise programmes and set their personal goals.
3. **Participation in Physical Exercises** : Students participate in regular physical exercises under the guidance of their teachers and record their activities in the loose leaf log sheet of the Student's Handbooks.
4. **Awards** : Students scoring the set total score in the tests will be awarded gold, silver or bronze level certificates respectively.

III. Participation in and Implementation of the Scheme

1. Application Procedure

Application for participation must be made through schools. Each year, the Education and Manpower Bureau(EMB) will invite schools to participate in the Scheme in September. Schools should register or renew registration to up-date details with the EMB on or before the deadline as specified.

2. Preparation by Schools

Participating schools should have the following physical education equipment and facilities:

- i) A square or rectangular sports ground with a boundary of 80 metres or above. There should be sufficient space on all sides as a buffer area.
- ii) Several gymnastic mats
- iii) Skittles, cones or markers for indicating distance
- iv) A stop-watch
- v) A measuring tape (30 or 50 metres)
- vi) A weighing scale
- vii) A height measuring scale
- viii) A whistle
- ix) Sit-and-reach box
- x) Skinfold calipers
- xi) Handgrip dynamometer (for primary schools only)

New participating primary schools can apply to borrow one hand grip dynamometer on a first come first served base. If schools are still in need of sit-and-reach box(es) and skinfold calipers, they may contact the HKCHF for assistance. In addition, schools that have joined the scheme before 2001/2002 have on hand the on loan equipment. For secondary schools, they may continue to keep the equipment when they withdraw from the SPFAS. Primary schools that withdraw from the Scheme must return the handgrip dynamometer(s) to the HKCHF. They may continue to keep the other equipment even if they withdraw from the Scheme.

Schools should inform the HKCHF if the on loan equipment is broken or require replacement. The HKCHF will try, if at all possible, to repair or replace the equipment. However, schools must deliver the equipment to and collect it from the HKCHF. Schools will NOT be responsible for any damage to the equipment.

Schools can conduct the tests under the scheme during physical education lessons, as co-curricular activities or at any time outside school hours. If the tests are conducted during physical education lessons, it takes about 4 periods to complete the test items for the whole class.

3. Safety Precautions and Goal Setting

Schools are responsible for explaining to students the aims and details of the scheme and to give them guidance in pursuing physical activities. Participating students must confirm that they are in normal health condition and are suitable to participate in the scheme by producing written parental consent. If there is any doubt, schools should advise parents to consult a registered doctor about the suitability of their children to participate in the scheme. Teachers can introduce knowledge of exercising to students during physical education lessons or extra-curricular activities.

For information regarding safety precautions, please refer to the booklets “**Safety Precautions in Physical Education for Hong Kong Schools**” (1999) and relevant circulars issued by the former Education Department/Education and Manpower Bureau, as well as educational materials on **Prevention of Sports Injuries** produced by the Department of Health, Central Health Education Unit. More details can be found on the website: <http://www.chedu.gov.hk/b5/resources/exercise.htm>. Students may join physical activities organised by other organisations as a part of the scheme. Other physical exercises done during leisure time should also be recognised. Students are responsible for recording these activities in the loose-leaf log sheet, Exercise Challenge Target and Diary [[Appendix VIII \(Secondary\)](#) or [XV \(Primary\)](#)].

The most important aim of the scheme is to encourage students to participate in physical exercises regularly. Teachers should pay special attention to the fitness condition of individual students and fun elements in designing exercise programmes so as to arouse students’ interest in pursuing a balanced exercise programme. Teachers can help students set their fitness targets and to design their individual exercise programmes with reference to their capacity. If students are actively involved in the planning process, it certainly helps to motivate students to exercise regularly and enhance their sense of ownership.

4. Fitness Test

Schools should follow the test protocols (procedures) in conducting the fitness test. The fitness test should be conducted by physical education teachers, while other teachers and senior class students can assist in taking measurements.

Schools should conduct all the fitness tests formally at least once in each school year and results of the test should be considered for awards. Students can calculate scores themselves. However, students of junior classes may require assistance from teachers. Please refer to the test protocols in Chapter V for more details of the fitness test.

5. Publicity & Promotion

The success of the scheme relies much on the support of schools and parents. Schools may promote the scheme through written notices, parents' day or any other means and occasions. Displaying posters (which can be downloaded from the website: <http://www.childhealthhongkong.com/2003/chi/05spfas/05c08.php> and other materials concerning the scheme will enable students to have a better understanding of the scheme.

6. Test Record

Teachers

Teachers can record students' fitness data and scores in the following ways:

- 1) From the teacher's Handbook, photocopy and use the table 'Student's Record Sheet' [[Appendix V](#)(Secondary) / [Appendix XII](#)(Primary)], OR
- 2) From the teacher's Handbook, photocopy and use the form 'Data Collection Record Sheet' [[Appendix VI](#)(Secondary) / [Appendix XIII](#)(Primary)], OR
- 3) From the teacher's Handbook, photocopy and use the table 'Class Record Sheet' [[Appendix VII](#)(Secondary) / [Appendix XIV](#) (Primary)].

Teachers can also use the specially designed computer software 'Physical Fitness Recording System (PFRS)' to record and handle data related to the SPFAS. The software can be downloaded from the website of EMB or HKCHF for use.

<http://www.emb.gov.hk/index.aspx?langno=1&nodeID=3186> or
<http://www.childhealthhongkong.com/2003/chi/05spfas/05c07.php>

Students

Students can record their own physical fitness data and scores in the following ways:

- 1) From the teacher's Handbook, teachers photocopy and distribute to students the 'Score Tables of Test Items' [[Appendix III and IV](#)(Secondary) / [Appendix X and XI](#) (Primary)] for checking the results, calculating their scores and keeping record in the 'Certificates and Score tables' [[Appendix IX](#) (Secondary) / [Appendix XVI](#) (Primary)] as well as planning and keeping record of their participation in physical exercise in the 'Exercise Challenge Target and Diary' [[Appendix VIII](#) (Secondary) / [Appendix XV](#) (Primary)].

- 2) Teachers guide students with student's handbooks to make use of the mentioned tables and forms for the same purposes by themselves.
- 3) Teachers and students can download the student's handbooks and the above-mentioned Appendix I to XVI for use, if necessary. The websites are:

<http://www.childhealthhongkong.com/2003/chi/05spfas/05c08.php> or
<http://www.emb.gov.hk/index.aspx?langno=1&nodeID=3186>

If students / schools still need the hard copy of the student's handbooks, they may approach the HKCHF for direct purchase. Details can be found on the website: <http://www.childhealthhongkong.com/2003/chi/05spfas/05c15.php>

Notes: Please refer to the content page of the Teacher's Handbook and Student's handbooks for necessary tables and forms.

7. Application for and the Issue of Certificates

The requirements and the scoring method based on the levels that individual student reaches remain unchanged. The Hong Kong Childhealth Foundation will award gold, silver or bronze level certificates to students instead of the former badges. Information in [Appendices III, IV or X, XI](#) as well as the following table indicates the requirements for the respective certificates.

Certificate and Score

<i>Total score</i>	<i>Certificate</i>
16 points or above	gold level
13-15 points	silver level
10-12 points	bronze level

Remarks : Starting from the 2000-2001 school year, a new scoring method based on the levels that individual students have reached is introduced to the scheme (Please refer to the student's handbooks printed in 2000 and after).

Participating teachers handling matters of the Scheme will also be awarded a certificate of appreciation. To apply for certificates, teachers should register on the Hong Kong Childhealth Foundation's website first. The direct link is <http://www.childhealthhongkong.com/spfas/registration>. After compiling the fitness test results of the students, application for certificates can be made from 1st April to end of the school year.

Once application for the certificates is made, HKCHF will notify schools where, when and how to collect the certificates. If students or schools still need the badges, they or the school on their behalf, may approach the HKCHF for direct purchase based on their achievements shown on their certificates. Details are provided on the website <http://www.childhealthhongkong.com/2003/eng/05spfas/05c15.php>

The service to send certificates to schools by mail is no longer available. If schools have any difficulty in applying for the certificates and sports grant on-line, they may contact the Hong Kong Childhealth Foundation for assistance (Tel. No.: 8208 0727, Fax No.: 2886 3166)

8. Application for Sports Grant

To apply for the sports grant, teachers should also register on the Hong Kong Childhealth Foundation's website first. The direct link is <http://www.childhealthhongkong.com/spfas/registration>. Application can be made at the same time when schools apply for certificates.

9. Parent's Consent

Written parental permission for students to take part in the Scheme must be obtained beforehand and kept by the school. An example is placed at the website <http://www.childhealthhongkong.com/2003/eng/05spfas/05c14.php>

IV. TEST ITEMS

1. **Skinfold Measurements**
2. **Bent-knee Sit-ups**
3. **Sit-and-reach**
4. **Endurance Run / Walk**
5. **Push-ups** (for Secondary School Boys) **or Bent-knee Push-ups** (for Secondary School Girls) / **Handgrip** (for Primary School Pupils)

V. TEST PROTOCOLS

Teachers should take students' body weight & height measurements before conducting the tests.

- Instructions:**
- 1) Students should wear lightweight clothing and remove their shoes when measuring body weight.
 - 2) Students should remove their shoes and stand erect when measuring height

Equipment : Weighing and height measuring scales.

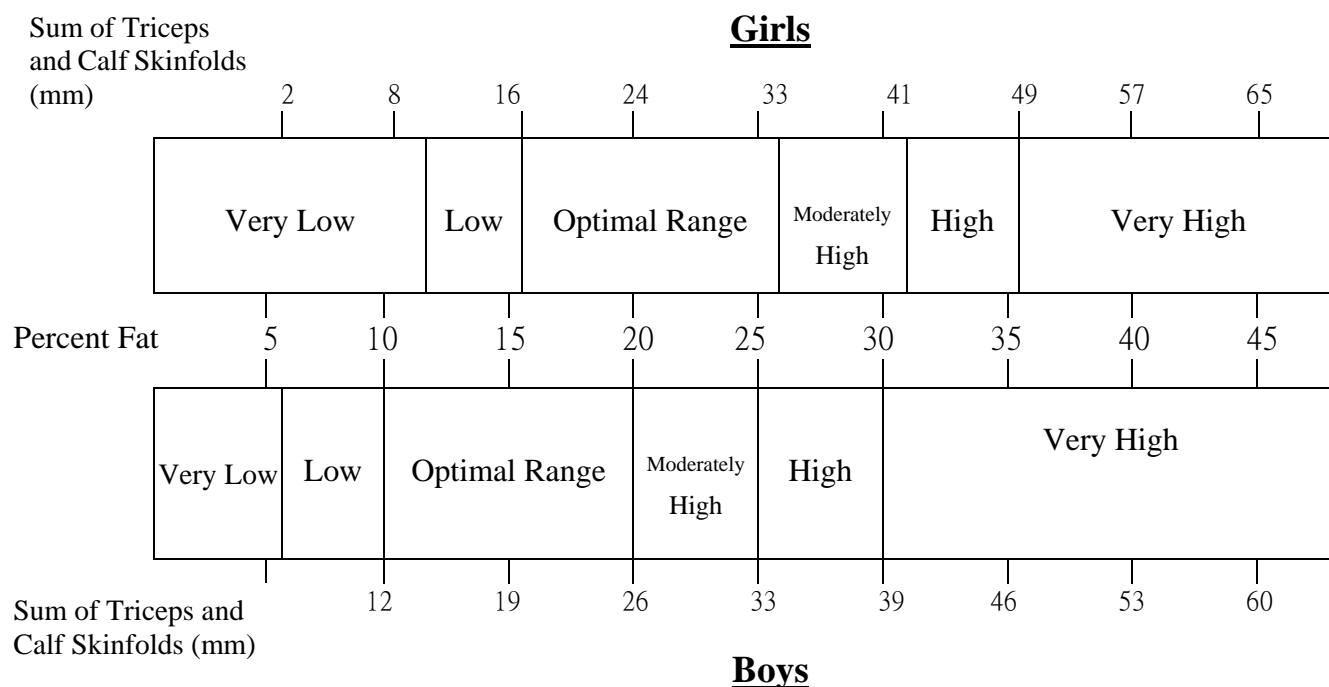
Measurement : Students' weight is measured to the nearest 0.5 kg while height is measured to the nearest cm

1. Skinfold Measurements

Objective : To measure the thickness of triceps and calf skinfolds. (Thickness of skinfolds can be used for estimating percent body fat.)

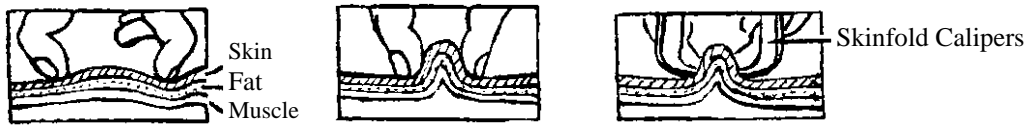
Sum of Triceps and Calf Skinfolds and Percent Body Fat Conversion Scale :

(The Scale serves as a reference only. There is no need to convert the skinfold measurements into percent body fat for students when calculating test scores.)

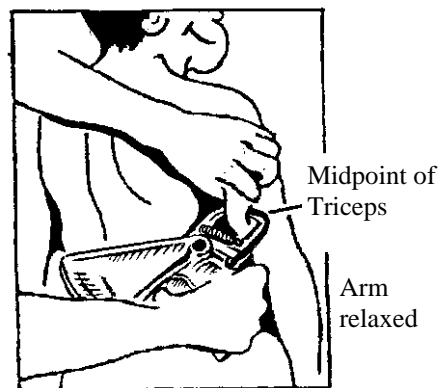


(Adapted from Lohman, 1987 and Slaughter et al., 1988)

Grasping the Skinfold :



(A). Skinfold Measurement for Triceps



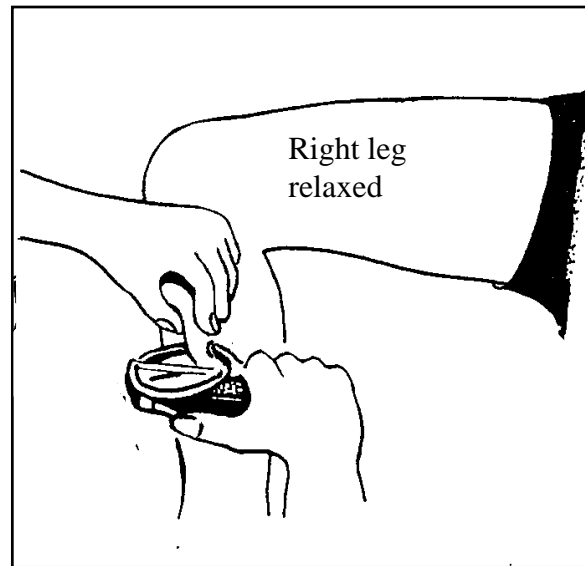
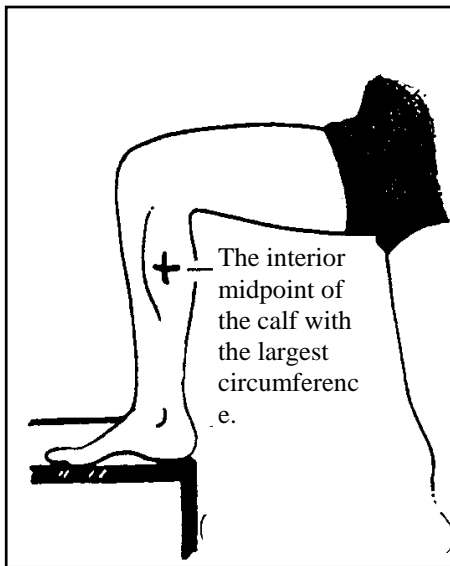
- Procedures:**
- 1) Measure at the midpoint of the triceps at the back of the right upper arm.
 - 2) The student should stand erect with the right arm relaxed and the palm facing the body.
 - 3) The tester should use the thumb and the index finger to grasp the skinfold at 1cm above the midpoint of the triceps (do not pull up the muscle) and then lift it gently. The direction of the lift should be taken at 90 degrees to the muscle.
 - 4) Use the skinfold caliper to measure the skinfold thickness at the midpoint of the triceps.
 - 5) Take the reading to the nearest 0.5mm.

Equipment : Skinfold calipers, measuring tape (to measure the midpoint between the elbow and the shoulder)

Measurement : Measure three times and take the reading of the middle one out of the three measurements to the nearest 0.5mm.

- Hints :**
- 1) The site of skinfold measurement must be accurate.
 - 2) Do not place the caliper at the base of the skinfold.

(b) Skinfold Measurement for the Calf



- Procedures :**
- 1) Measure the interior midpoint of the calf with the largest circumference.
 - 2) The student should stand erect with the right leg relaxed.
 - 3) The tester should use the thumb and the index finger to grasp the skinfold at the midpoint of the interior of the largest circumference of the calf (do not pull up the muscle) and then lift it gently. The direction of the lift should be taken at 90 degrees to the muscle.
 - 4) Use the skinfold caliper to measure the skinfold thickness at the midpoint of the interior of the largest circumference of the calf.
 - 5) Take the reading to the nearest 0.5mm.

Equipment : Skinfold calipers, measuring tape (to measure the midpoint of the interior of the largest circumference of the calf)

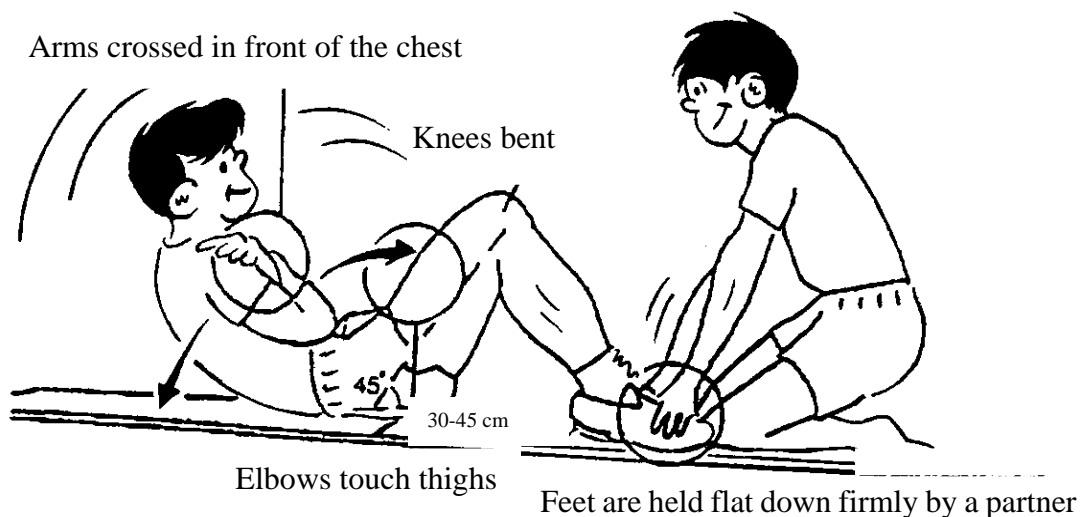
Measurement : Measure three times, and then take the middle one out of the three measurements to the nearest 0.5 mm.

- Hints :**
- 1) The site of skinfold measurement must be accurate.
 - 2) Do not place the calipers at the base of the skinfold.

2. Bent-knee Sit-ups

Objective : To measure abdominal muscle strength and endurance by performing as many sit-ups as possible in 1 minute.

USit-ups



- Procedures:**
- 1) The student lies on the mat with knees bent and the feet are held flat down firmly by a partner. The heels should be 30 to 45 cm from the buttocks, such that the angle between the thigh and the floor is about 45 degrees. Arms are crossed in front of the chest with hands on the opposite shoulders. The chin is tucked to the chest.
 - 2) The student lies in supine position. In response to the starting signal, he/she curls up until the elbows touch the thighs, and then uncurls until the mid-back contacts the mat. This is counted as one time.
 - 3) The teacher should encourage the student to repeat as many sit-ups as possible within one minute. The student may rest in a lying or sitting position during the test.

Equipment : Stop-watches and gymnastic mats.

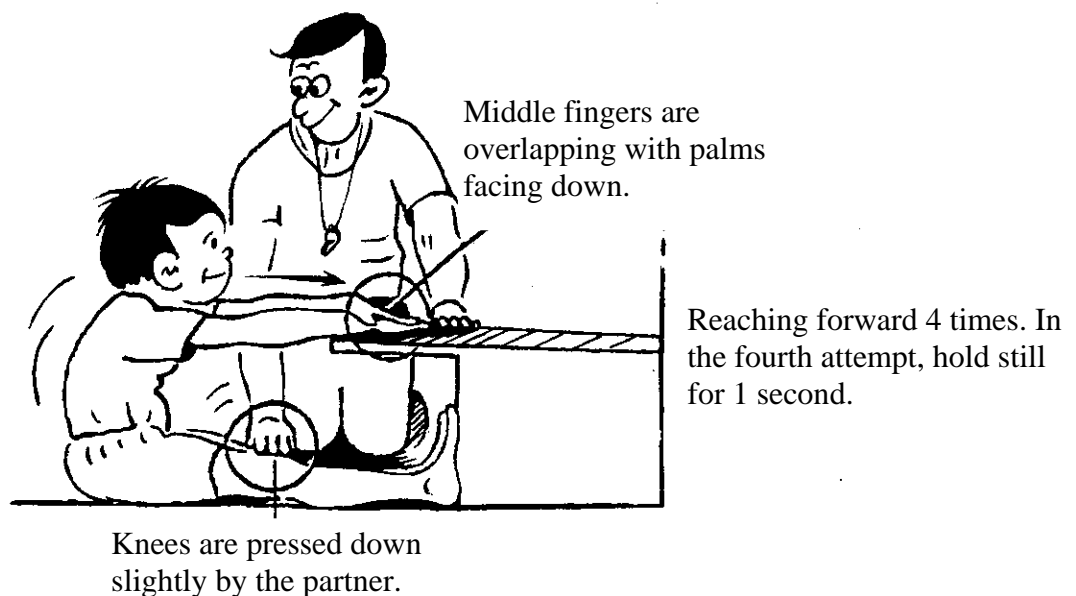
Measurement : Record the number of correctly performed sit-ups in one minute.

- Hints :**
- 1) The partner (students are paired up) is responsible for recording the number of correct sit-ups.
 - 2) The supervisor (teacher) must ensure that the sit-ups are correctly performed. The teacher should remind the student that his/her back should touch the mat first when his/her body is uncurled to avoid the head hitting against the floor.
 - 3) Two parallel lines can be drawn on the mat to ensure that the distance between the hips and the feet complies with the requirements (30 to 45cm).

3. Sit-and-Reach

Objective : To measure the flexibility of the lower back and hamstring muscles by reaching forward as far as possible in a sitting position.

USit-and-ReachU



- Procedures :**
- 1) Place the sit-and-reach box on the mat against the wall or a pillar for stabilization.
 - 2) The student should remove shoes, sit with knees fully extended and face the sit & reach box. Both feet should be flatted and placed against the end board, approximately shoulder width apart.
 - 3) The student should reach forward with arms straight, palms facing down and one hand on top of the other with middle fingers overlapping.

- 4) During the test, the student should fully extended his/her body in straight arms with fingertips sliding forward as far as possible along the measuring scale four times. At the fourth attempt, the student should hold that position still momentarily at least for 1 second at the mark reached on the box.

Equipment : Sit-and-reach box, a specially constructed box marked in 1 cm. intervals. On the measuring scale, the 23cm mark is in line with the vertical plane of the end board against which the student's feet are placed.

Measurement : Record the distance reached in the fourth attempt in the nearest cm. If the student's hands reach forward unevenly, repeat the test.

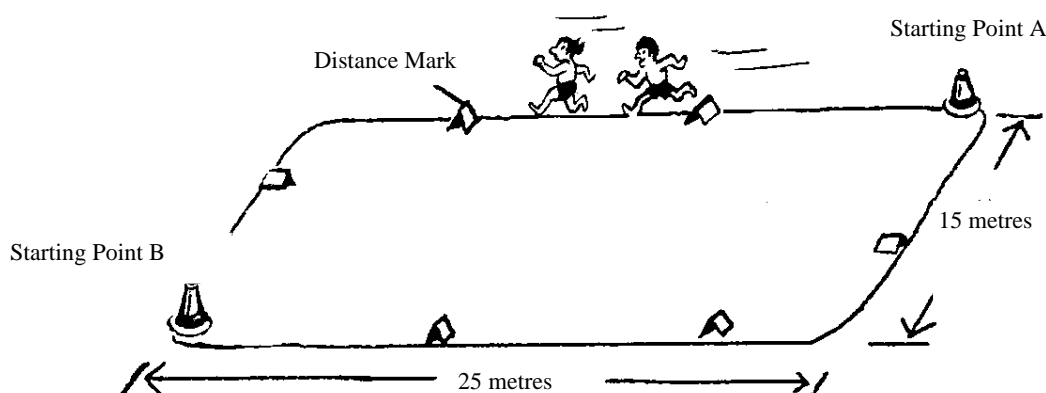
Hints : The sit-and-reach box must conform to the specification.

4. Endurance Run/Walk (6 minutes for age 6-8 and 9 minutes for age 9 or above)

Objective : To measure the cardiovascular endurance by measuring the total distance run / walked in 6/9 minutes in the specific area .

Testing Area : The test can be conducted on a basketball court (25m x 15m) or on any flat ground which is rectangular in shape with a boundary of 80 metres. There should be sufficient space on all sides as a buffer area.

UEndurance Run / Walk (6/9 Minutes)



- Procedures:**
- 1) Students should run/walk to cover the greatest distance within the time limit.
 - 2) Teachers should remind students to accelerate gradually and attempt to keep running at a steady pace.
 - 3) Teachers should call out the remaining time at the last three minutes and at the last 15 seconds. Students lap scorers should be reminded to get ready when it is about time to record the distance covered.
 - 4) Students should continue to run/walk until the teacher gives a stopping signal and continue to walk for another 1 to 2 laps as a calm-down activity.
 - 5) During the test, students are allowed to walk if they are tired. However, the teacher should encourage them to cover the greatest distance within the time limit.

Equipment : Skittles, stop watches, markers (to show distance), a whistle, pens and Data Collection Record Sheets.

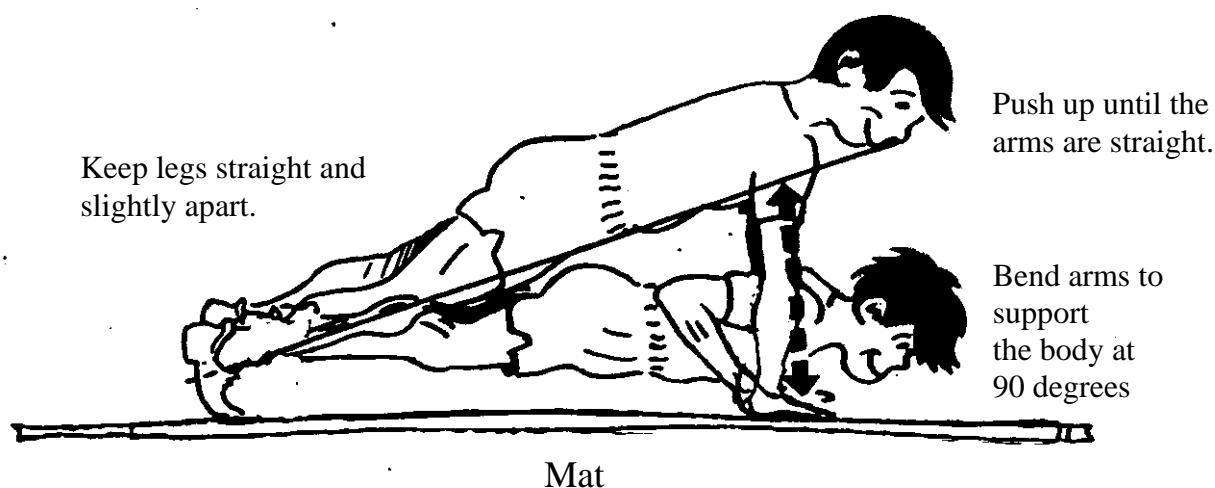
Measurement : Record the distance covered to the last whole unit of 10 metres.

- Hints** :
- 1) It is important that the teacher should find out whether the students are fit enough to take part in the test.
 - 2) Students should be given opportunities to practise running/walking for the required time at a steady pace prior to the test day.
 - 3) Students should be encouraged to do proper warming-up exercises before running or walking vigorously.
 - 4) Students should be encouraged to try their best.
 - 5) Students can be paired up to assist in counting the number of laps covered by their partners. Each student should be given a pen/pencil and a record sheet to record the distance covered by his/her partner
 - 6) Divide the class into 2 halves. Each half may be further divided into groups. Each group will begin the test at the opposite corners with markers of the testing area simultaneously.

5. A. Push-ups (For Secondary School Boys) / Bent-knee Push-ups (For Secondary School Girls)

Objective : To measure muscular strength and endurance of the upper limbs by performing as many push-ups as possible.

(1) Push-ups (For Secondary School Boys)



- Procedures:**
- 1) The student lies in a prone position on the mat. Arms are bent and hands placed under the shoulder with fingers stretched out and pointed to the front. Legs are kept straight and slightly apart.
 - 2) In response to the starting signal, the student pushes his/her body up until arms are fully extended.
 - 3) During the test, the legs, the back and the head should be kept in a straight line. A complete cycle of pushing up with arms fully extended is counted as one successful push-up.

Under the following circumstances, a push-up should be corrected and should not be counted:

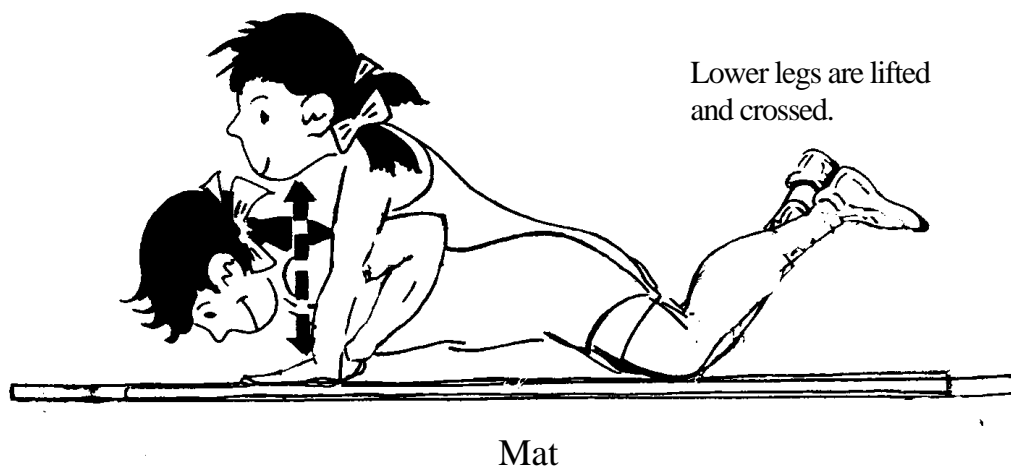
1. *When knees touch the floor.*
2. *When the back sways.*
3. *When arms fail to extend fully.*
4. *When arms fail to bend at 90 degrees at the elbow.*
5. *When a push-up is jerky.*

Equipment : Gymnastic mats.

Measurement : Record the number of push-ups correctly completed.

Hints : The test should be terminated if the tester corrects the action of the student for **two** times. Push-ups corrected should not be counted.

(2) Bent-knee Push-ups (For Secondary School Girls)



- Procedures:**
- 1) The student lies in a prone position, arms are bent and hands are placed under the shoulder with fingers stretched out and pointed to the front. Thighs are kept straight and slightly apart to support the body on knees with lower legs lifted and crossed at the back.
 - 2) In response to the starting signal, the student should push her body up until arms are fully extended.
 - 3) During the test, the knees, the back and the head should be kept in a straight line. A complete cycle of pushing up with arms fully extended is counted as one successful bent-knee push-up.

Under the following circumstances, a push-up should be corrected and should not be counted :

1. *When the back sways.*
2. *When arms fail to extend fully.*
3. *When arms fail to bend at 90 degrees at the elbow.*
4. *When a push-up is jerky.*

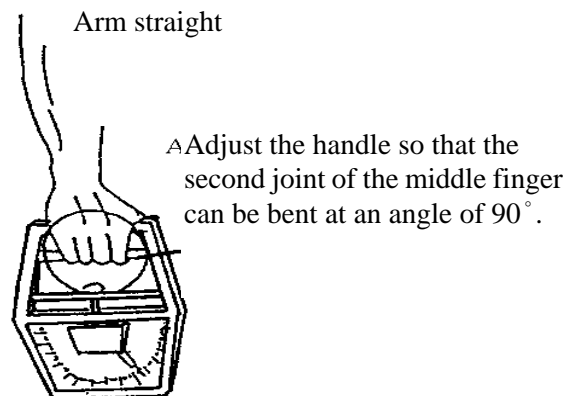
Equipment : Gymnastic mats.

Measurement : Record the number of bent-knee push-ups correctly completed.

Hints : The test should be terminated if the tester corrects the action of a student for **two** times. Bent-knee push-ups corrected should not be counted.

B. Hand Grip (For Primary Schools Pupils)

UHand Grip Test



Objective : To measure the maximum handgrip strength.

- Procedures:**
- 1) Adjust the grip distance so that when the pupil holds the hand grip dynamometer with hands down, the second joint of the middle finger can be bent at an angle of 90°.
 - 2) The pupil holds the dynamometer by the side of the thigh and grips it.
 - 3) The pupil should use the part of the hand between the second section of fingers and the base of thumb to grip the dynamometer. The pupil should grip the dynamometer as hard as possible without swinging it around.
 - 4) The pupil should be allowed three attempts for each hand. The best result of each hand is recorded. Rest should be allowed between attempts.
 - 5) During the test, the pupil should hold the handgrip dynamometer in a way that it is not touching the body or other objects.

Equipment : Handgrip dynamometer (with adjustable handle)

Measurement : Record the best score out of the three attempts to the nearest 0.5 kg.

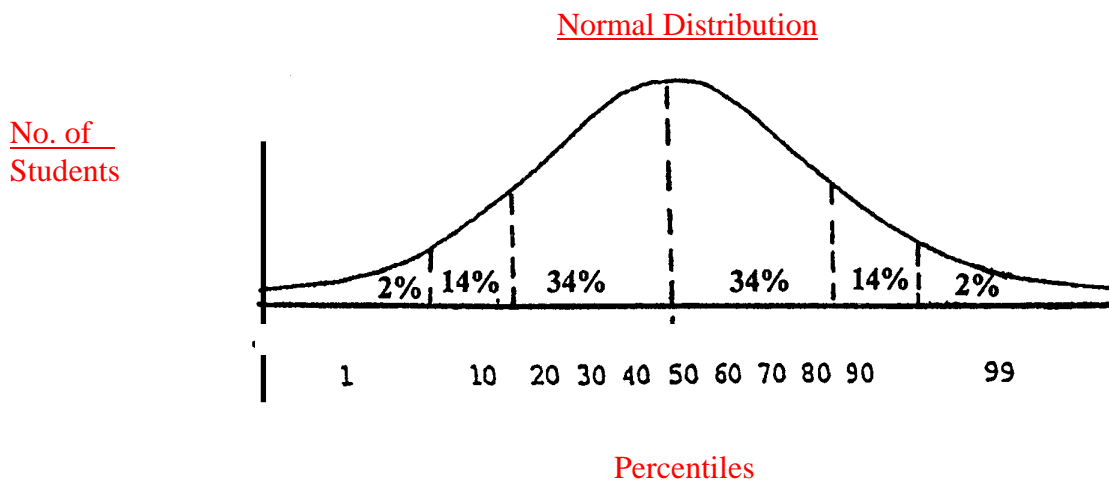
- Hints** :
- 1) If equipment is sufficient, a group of several pupils can take the test at the same time. This arrangement will increase the efficiency of conducting the test on a group of pupils.
 - 2) Pupils must concentrate on the task to obtain the best results.
 - 3) The dynamometer must be readjusted before each attempt; the pointer should be reset to the zero mark.

VI. Interpretation of Test Results and Percentiles

Norms and percentile ranks are frequently used to show the subject's characteristics and levels in the test. A comparison between scores of an individual and the norm table (the table of percentile ranks) can roughly show whether his/her standard is above, below or equivalent to the average. Many tests use the percentile ranks to show the position of an individual among subjects of the same group. Students can understand their performance better if their percentile ranks are converted into scores.

A student knows little about his/her own performance of covering 1800 metres in the 9-Minute Endurance Run without referring to the norms. However, if this result is expressed in percentiles or percentile scores, it will be much more meaningful to him/her. For example, if a seventeen-year old boy completes 1800 metres in the 9-Minute Run, he reaches the 75th percentile. This means that he performs as well as or better than 75% of the seventeen-year old boys in the same test item.

Percentiles are computed from a large amount of relevant data whose distribution is normally bell-shaped.



The difference in performance between percentiles close to the middle (50) is relatively small, but that at both ends is much greater. For example, a 17 year old-boy scoring the 50th percentile in the 9 Minutes Endurance Run covers 1675 metres while another boy scoring the 25th percentile covers 1520 metres. Their difference is **155** metres. However, a boy scoring the 3rd percentile covers 1207 metres. The difference between his distance covered and that of the 25th percentile is **313** metres. Therefore, when converting test results into percentile ranks (scores), they should not be treated as arithmetic means.

The percentile ranks in the norm tables of the Schools Physical Fitness Award Scheme are derived from the results of two surveys on “The Physical Fitness Status of Hong Kong Secondary School Children” conducted by the Hong Kong Childhealth Foundation and the Physical Education Section of the Education Department between 1998 and 2000. About 4,000 (secondary) and 4,600 (primary) students from 20 local secondary and 23 primary schools took part in the tests respectively. Therefore, when using the percentile ranks for comparison, teachers should bear in mind that they are comparing their students with local secondary and primary students’ performance of the year 1998/1999 and 1999/2000 respectively.

Besides, the norms show the overall standard of Hong Kong students rather than the expected performance of individual students. Apart from the inborn factors, students’ physical status during the test and the environmental factors of the test should also be considered when interpreting test results.

In the school stage, students are undergoing a growth process but the growth rates of individual children of the same age can be quite different. Results of the test should not be used to predict future performance of individual children in sports. However, participating schools can derive their own norms from the test results of their students and compare their own norms with those of the scheme.

VII. Design of Exercise Programmes

Health-related fitness comprises the following components:

1. Cardiovascular endurance
2. Muscular strength and endurance
3. Flexibility
4. Body composition

A healthy body can be maintained by participating in a regular and balanced exercise programme which includes the above four components. The tests of this scheme are designed according to this theoretical framework. Based on the percentile scores obtained in the tests, the physical fitness of individual students can be identified.

Teachers are advised to assist students to design their individual exercise programmes according to their capacity. If a student's performance in the endurance run is below average, his/her training program should be geared to strengthening the aerobic endurance of the student in the exercise programme. In order to ensure that the students have a balanced development, the exercise programme should include activities other than items in the tests. To improve the cardiovascular function, swimming, brisk walking and distance running will help achieve the same objective.

Junior class students are not physically mature enough to take part in weight training. Therefore, specific training programmes for adults (such as weight training) should not be adopted for students. In addition, a child's physical development and maturity is closely related to the exercise workload. The following factors should be considered when designing exercise programmes for students:

1. **Growth Rate and Height** - Growth rate remains steady during childhood. Starting from the age of 5, growth rate increases on an average of 6.5cm per year in terms of height and gradually decreases to 5cm per year on puberty.
2. **Body Composition** - Before puberty, boys and girls share almost the same body composition. Their body fat increases steadily and reach a level of about 15% to 20% of the body mass whereas muscle, bone and organs have a greater extent of changes.

3. **Cardiovascular Endurance** - The maximum oxygen uptake (Aerobic Capacity) of a child increases with age. A child's motor ability is positively related to his/her age. Students of junior and senior classes will have different physiological reactions to high intensity training.
4. **Muscular Strength** - Nervous stimulation and hormonal activities in the body greatly influence the growth of muscle fibers. Stimulus produced by exercises will facilitate the growth of muscles and bones. For students of the same body height, older students will have greater muscular strength. During puberty, boys have a slightly stronger muscular strength in the upper extremities than girls have.
5. **Flexibility** - Before puberty, most students have good flexibility. Generally, girls are more flexible.

The exercise intensity correlates positively with heart rates. According to most research, exercising at 70% or above of the maximal heart rate for 20 minutes, 3-5 times a week can improve the cardiovascular function of the body. Students of junior classes may find difficulties in understanding the above concepts. To help students understand these concepts better, teachers should explain the effect of frequency and duration of exercises to students.

To design a balanced exercise programme, the following **FITT** principles should be considered:

1. **Frequency** - Research shows that exercising three times a week can maintain or improve health conditions.
2. **Intensity** - Generally speaking, exercise intensity can be estimated from the heart rates. Muscular strength and endurance can be calculated from weight resistance and the number of repetitions.
3. **Time (duration)** - Research shows that exercising continuously for 20 minutes or above each time can maintain or improve health.
4. **Type of Training** - Different types of physical activities result in different training effects. Therefore, the selected physical activities should meet the training needs.

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Appendices I to II

(For Secondary and Primary Schools)

Awards and the Sports Grant Offered by The Hong Kong Childhealth Foundation (HKCHF)

I . The HKCHF is offering the following school awards in addition to the certificates for individual students:

1. School Participation Certificate

The HKCHF will offer the “School Participation Certificate” to the schools having successfully completed the Scheme for a particular academic year.

2. School Achievement Award

The HKCHF will offer the “School Achievement Award” to the three schools with the best achievement. Weighted scores will be given to the gold, silver and bronze certificates. An index based on the total score (the levels won) and the total number of participants will then be calculated. Based on the result of the above calculation, the three schools with the best achievement will be the champion, 1st runner-up and 2nd runner-up. A plaque will be presented to each of the schools. The HKCHF reserves the right to make the final decision on the winners after taking other factors into consideration.

3. Progressive School Award

The HKCHF will offer an award named “ Progressive School Award ”. It will be awarded to schools with the best improvement in achievement that year as compared to the previous year. A plaque will be awarded to the 3 winning schools.

4. Sports Grant

All schools which have participated in the Physical Fitness Award Scheme for more than one year will be entitled to apply for a “Sports Grant” with the amount up to \$5,000 from the HKCHF. The school must use the Grant to purchase equipment for improving physical fitness of their students. The HKCHF reserves the right to decide which schools and the amount to award in such a Grant.

II . Application for the Awards

Participating schools interested in applying for the awards or sports grant should register through the website <http://www.childhealthhongkong.com/spfas/registration>. Application should be submitted to the Hong Kong Childhealth Foundation on-line from 1st April to the end of the school year.

III . Enquiry

For enquiry, please contact the HKCHF Secretariat on 8208 0727.

Table for conversion of skinfold measurements into estimated percent body fat

Boys

	Very Low	Low	Optimal Range	Moderately High	High	Very High
Percent Body Fat	Under 5.8%	5.9-10.2%	10.3-20.1%	20.2-25.3%	25.4-30.0%	Over 30.0%
Skinfold Measurement	Under 6.5 mm	7.0-12.5 mm	13.0-26.0 mm	26.5-33.0 mm	33.5-39.5 mm	Over 40.0 mm

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Girls

	Very Low	Low	Optimal Range	Moderately High	High	Very High
Percent Body Fat	Under 12.1%	12.2-14.9%	15.0-26.8%	26.9-31.9%	32.0-35.0%	Over 35.0%
Skinfold Measurement	Under 11.5 mm	12.0-16.0 mm	16.5-35.5 mm	36.0-44.0 mm	44.5-49.0 mm	Over 49.5 mm

Appendices III to IX

(For Secondary Schools)

